


## **Program Outcomes (PO's):**

Graduates will be able to:


1. Apply knowledge of mathematics, science and engineering fundamentals to solve complex engineering problems.
2. Identify, formulate, review, research literature and analyze complex engineering problems.
3. Design solutions for complex engineering problems in view of societal and environmental conditions.
4. Conduct and investigate the complex engineering problems.
5. Use of modern tools for solving complex engineering problems.
6. Apply reasoning informed by society in view of health, safety and legal issues.
7. Understand impact of environmental context and demonstrate need for sustainable development.
8. Apply ethical principles and commit to professional ethics and responsibilities.
9. Function effectively as individual and team leader.
10. Communicate effectively on complex engineering activities with engineering community and society at a large.
11. Manage projects of multidisciplinary environments and demonstrate knowledge and understanding of management principles.
12. Engage in independent and life-long learning in broadest context of technological change.

  
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**CIVIL ENGINEERING DEPARTMENT**  
**PROGRAMME SPECIFIC OUTCOMES (PSOs)**

- 1.0 Graduate will be able to apply knowledge of design components of building Structures, Hydraulic Structures, Bridge Structures, and Earth retaining Structures.
- 2.0 Graduates will be able to apply knowledge of Civil Engineering materials, Water Quality and wastewater characteristics and conduct relevant experiments to analyze, design and interpret the data for the construction and execution of civil engineering projects.
- 3.0 Graduate will be able to apply modern engineering tools and software of civil engineering problems.

  
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## MECHANICAL ENGINEERING DEPARTMENT

### PROGRAMME SPECIFIC OUTCOMES (PSOs)

Graduates will be:


**PSO 1:** Able to apply the knowledge of mathematics, science and design concept in solving complex engineering problems of product design, thermal engineering and manufacturing systems

**PSO 2:** Able to apply their knowledge in the field of engineering mechanics, thermal and fluid sciences to solve engineering problems utilizing advanced tools and technologies.

**PSO 3:** Able to learn managerial skills to work effectively in a team and develop the leadership qualities.




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**Course Outcomes of Civil engineering department**


S.Y. B.Tech Sem-I	1. Engineering Mathematics	2. Mechanics of solides	3. Hydraulic -I	4.Surveying-I	5. Building Constructions	6.Engineering Geology
	On completion of the course, student will be able to formulate and solve mathematical model of civil engineering phenomena in field of structures, survey, fluid mechanics and soil mechanics	On completion of the course, the students will be able to: CO1: Perform the stress-strain analysis. CO2: Draw force distribution diagrams for members and determinate beams. CO3: Find deflections in determinant beams. CO4: Visualize force deformation behavior of bodies.	On completion of the course, the students will be able to: CO1: Calibrate the various flow measuring devices. CO2: Determine the properties of fluid and pressure and their measurement. CO3: Understand fundamentals of pipe flow, losses in pipe and analysis of pipe network. CO4: Visualize fluid flow phenomena observed in Civil Engineering systems.	On completion of the course, the students will be able to: CO1: Perform measurements in linear/angular methods. CO2: Perform plane table surveying in general terrain. CO3: Know the basics of leveling and theodolite survey in elevation and angular measurements	On completion of the course, students will be able to: CO1: Understand types of masonry structures. CO2: Understand composition of concrete and effect of various parameters affecting strength. CO3: Comprehend components of building and there purposes. CO4: Comprehend the precast and pre-engineered building construction techniques.	On completion of the course, the students will be able to: CO1: Recognize the different land forms which are formed by various geological agents. CO2: Identify the origin, texture and structure of various rocks and physical properties of mineral. CO3: Emphasize distinct geological structures which have influence on the civil engineering structure. CO4: Understand how the various geological conditions affect the design parameters of structures.

  
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	1.Design of concrete structure	2.Foundation Engineering	3.Concrete Technology	4.Project Management	5.Building planning & Design	6.Elective III Business communication & Skill
	On completion of the course, the students will be able to:	On completion of the course, the students will be able to:	On completion of the course, the students will be able to:	On completion of the course, the students will be able to:	On completion of the course, the students will be;	
	Comprehend to the various design philosophies used for design of reinforced concrete.	To predict soil behavior under the application of loads and come up with appropriate solutions to foundation design queries.	CO1: Understand the various types and properties of ingredients of concrete.	Understand various steps in project Management, different types of charts.	To plan buildings considering various principles of planning and bye laws of governing body.	
	Analyze and design the reinforced concrete slab using limit state and working state method.	Analyze the stability of slope by theoretical and graphical methods.	CO2: Understand effect of admixtures on the behavior of the fresh and hardened concrete.	Construct network by using CPM and PERT method.	Comprehend various utility requirements in buildings	
T.Y. B.Tech PART II	Analyze and design the reinforced concrete beam using limit state and working state method.	Analyze the results of in-situ tests and transform measurements and associated uncertainties into relevant design parameters.	CO3: Formulate concrete design mix for various grades of concrete.	Determine the optimum duration of project with the help of various time estimates.	Understand various techniques for good acoustics.	
	reinforced concrete column using limit state and working state method.	Synthesize the concepts of allowable stress design, appropriate factors of safety,		Know the concept of engineering economics, economic comparisons, and		
				Understand the concept of total quality Management including Juran and Deming's philosophy.		
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	<b>1.Design Of concrete stru-re-II</b>	<b>2.Infra structure Engineering</b>	<b>3.Water Resources Engg.</b>	<b>4.Professional Practices</b>	<b>5 Elective -V Town &amp; Urban Planning</b>
	On completion of the course, the students will be;	On completion of the course, the students will be able to:	On completion of the course, the students will be able to:	On completion of the course, the students will be able to:	The student shall understand the planning of town & Draw the plan of that town.
<b>B.Tech Civil Engg. PART I</b>	Able to identify the behavior, analyze and design of the beam sections subjected to torsion.	Know about the basics and design of various components of railway engineering	CO1: Understand need of Irrigation in India and water requirement as per farming practice in India.	Understand the importance of preparing the types of estimates under different conditions for various structures.	
	Able to analyze and design of axially and eccentrically loaded column and construct the interaction diagram for them.	Understand the types and functions of tracks, junctions and railway stations.	CO2: Understand various irrigation structures and schemes.	Know about the rate analysis and bill preparations and to study about the specification writing.	
	Understand various concepts, systems and losses in pre-stressing.	Know about the aircraft characteristics, planning and components of airport	CO3: Develop basis for design of irrigation schemes	Know the various types of contract, accounts in PWD, methods for initiating the works in PWD and tendering.	
	Able to analyze and design	Understand the types and		Understand the valuation of	

  
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	<b>1.Characterisation of const.Material</b>	<b>2.Geo synthetic &amp; reinforce soil structure</b>	<b>3.Higher syrvying</b>	<b>4.Maintainance &amp; repair of concrete structures</b>	<b>5.Structural Dynamics.</b>	
<b>Btech. Civil PART II</b>	<p>The objective of the course is to introduce students to the characterization of construction materials and their behaviour, with a view of developing their understanding of the mechanisms that govern the performance of these materials. The course will be focused primarily on cement and concrete, and include the following techniques; the physics of the techniques and their application to cement science, including lab demonstrations and experiments will be covered</p>	<p>This course introduces the students to the different types of geosynthetics, their manufacturing technique, testing methods and their applications in different types of Civil Engineering projects. Detailed design techniques and construction methods will be covered in the course.</p>	<p>Conventional survey techniques are all about measuring 2D or 3D coordinates of a point for mapping of a surface. Though accurate, these techniques are time consuming for topographic mapping. With development of various hard and soft technologies in last two decades, advanced mapping techniques have evolved. It gives a paradigm shift as conventional surveys are superseded by advanced surveying techniques, which are not only accurate and flexible but require minimum time to acquire large amount of 3D data. Therefore, these techniques have been extensively used in many areas of engineering by students, researchers, and industries. On the other hand, the fundamental</p>	<p>To learn various distress &amp; damages to concrete mesonary structures. 2. To understand the importance of maintainance of structure. 3 . To study the various types &amp; porperties of repair maintainance.</p>	<p>Structural dynamics is a basic course in defining &amp; understanding dynamic problems mainly related to civil engineering.2. the course is intelded to provide necessary knowledge to establish the equation of motion &amp; for the determination of structural response from dynamic load.</p>	

  
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# Course Outcomes of Mechanical engineering department

	1. Engineering Mathematics –III	2. Material Science and Metallurgy	3. Fluid Mechanics	4. Machine Drawing and CAD	5. Thermodynamics	6. Basic Human Rights
	Students will be	Students will be	Students will be	Students will be	Students will be	Students will be
	1.To develop Logical understanding of the subject	1. Study various crystal structures of materials	1. Define fluid, define and calculate various properties of fluid	1. Interpret the object with the help of given sectional and orthographic	1. Define the terms like system, boundary, properties,	1. Understand the history of human rights.
	2.To develop mathematical skill so that students are able to apply mathematical methods	2. Understand mechanical properties of materials and calculations of same using appropriate equations	2. Calculate hydrostatic forces on the plane and curved surfaces and explain stability of floating bodies	2. Construct the curve of intersection of two solids	2. Study different laws of thermodynamics and apply these to simple thermal systems like balloon, piston-cylinder	2.Learn to respect others caste, religion, region and culture.
<b>SY BTech Part I</b>	3.To produce graduates with mathematical knowledge & computational skill.	3. Evaluate phase diagrams of various materials	3. Explain various types of flow. Calculate acceleration of fluid particles	3. Draw machine element using keys, cotter, knuckle, bolted and welded joint	3. Study various types of processes like isothermal, adiabatic, etc. considering	3.Be aware of their rights as Indian citizen
		4. Suggest appropriate heat treatment process for a given application	4.Apply Bernoulli's equation and Navier-Stokes equation to simple problems in fluid	4. Assemble details of any given part. i. e. valve, pump, machine tool part etc	4. Apply availability concept to non-flow and steady flow type systems	4.Understand the importance of groups and communities in the society.

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	5. Prepare samples of different materials for metallograp	5. Explain laminar and turbulent flows on flat plates and through pipes	5. Represent tolerances and level of surface finish on production drawings	5. Represent phase diagram of pure substance (steam) on different thermodynamic planes like p-v, T-s, h-s, etc. Show various	5. Realize the philosophical and cultural basis and historical perspectives of human rights.
	6. Recommend appropriate NDT technique for a given application	6. Explain and use dimensional analysis to simple problems in fluid mechanics. Understand	6. Understand various creating and editing commands in Auto Cad		6. Make them aware of their responsibilities towards the nation.

1. Manufacturi ng Processes- I	2. Theory of Machines- I	3. Strength of Materials	4. Numerical Methods in Mechanical Engineering	5. Product Design Engineering - I	6. Physics of Engineering Materials	7. Advanced Engineering Chemistry	8. Interperson al Communica
Students will be	Students will be	Students will be	Students will be	Students will be	Students will be	Students will be	Students will
1. Identify castings processes, working principles and	1. Define basic terminology of kinematics of mechanisms	1.State the basic definitions of fundamental terms such as axial load	1. Describe the concept of error	1. Create simple mechanical designs	1. Understand the different types of structures of solid, defects in solids and analysis of	1. Classify and explain various types of Corrosion and should apply	1. Acquire interpersonal communicati on skills
2. Understand the various metal forming processes, working principles and	2.Classify planar mechanisms and calculate its degree of freedom	2.Recognize the stress state (tension, compression, bending, shear, etc.) and calculate	2. Illustrate the concept of various Numerical Techniques	2. Create design documents for knowledge sharing	2. Understand the origin and types of magnetism, significance of hysteresis loo in different magnetic	2.Understand and apply the concepts of Photochemical and Thermal reactions.	2. Develop the ability to work independentl y.

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<b>SY BTech Part II</b>	3. Classify the basic joining processes and demonstrate principles of welding,	3. Perform kinematic analysis of a given mechanism using ICR and RV methods	3. SDistinguish between uniaxial and multiaxial stress situation and calculate principal stresses,	3. Evaluate the given Engineering problem using the suitable Numerical	3. Manage own work to meet design requirements	3. Understand the band structure of solids and conductivity, categorization of solids on the basis	3. Understand the basic concepts of Polymers, Polymerization and Moulding	3. Develop the qualities like self-discipline, self-criticism and self-
	4. Study center lathe and its operations including plain,	4. Perform kinematic analysis of a given mechanism	4. Analyze given beam for calculations of SF and BM	4. Develop the computer programming based on the	4. Work effectively with colleagues	4. Understand the principles of superconductivity, their uses in	4. Understand and apply the basic techniques in	4. Have the qualities of time management
	5. Understand milling machines and operations, cutters and	5. Perform kinematic analysis of slider crank mechanism using Klein's	5. Calculate slope and deflection at a point on cantilever /simply supported beam using			5. Understand the position of Fermi level in intrinsic and extrinsic semiconductors,	5. Understand and apply various types of Spectroscopic, Chromatographi	5. Present themselves as an inspiration for others
	6. Study shaping, planing and drilling, their		6. Differentiate between beam and column and calculate critical			6. Understand the electric field in dielectric. Understand basics		6. Develop themselves as good team leaders

<b>1. Heat Transfer</b>	<b>2. Applied Thermodynamics - I</b>	<b>3. Machine Design - I</b>	<b>4. Theory of Machines - II</b>	<b>5. Metrology and Quality Control</b>	<b>6. Product Design Engineering - II</b>	<b>7. Automobile Engineering</b>
Students will be able to:	Students will be able to:	Students will be able to:	Students will be able to:	Students will be able to:	Students will be able to:	Students will be able to:
1. Explain the laws of heat transfer and deduce the general heat	1. Define the terms like calorific value of fuel, stoichiometric air-fuel ratio, excess	1. Formulate the problem by identifying customer need and convert into	1. Identify and select type of belt and rope drive for a particular	1. Identify techniques to minimize the errors in measurement	1. Create prototypes	1. Identify the different parts of the automobile.

  
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Part I

2. Describe the critical radius of insulation, overall heat transfer coefficient,	2. Study and Analyze gas power cycles and vapour power cycles like Otto, Diesel, dual, Joule	2. Understand component behavior subjected to loads and identify failure criteria	2. Evaluate gear tooth geometry and select appropriate gears, gear trains	2. Identify methods and devices for measurement of length, angle, and gear and	2. Test the prototypes	2. Explain the working of various parts like engine, transmission, clutch, brakes
3. Interpret the extended surfaces	3. Classify various types of boiler, nozzle, steam turbine and	3. Analyze the stresses and strain induced in	3. Define governor and select/suggest an appropriate	3. Choose limits for plug and ring gauges.	3. Understand the product life cycle management	3. Demonstrate various types of drive systems.
4. Illustrate the boundary layer concept, dimensional analysis for fluid	4. Classify various types of IC engines. Sketch the cut section of typical diesel	4. Design of machine component using theories of failures	4. Characterize flywheels as per engine requirement	4. Explain methods of measurement in modern		4. Apply vehicle troubleshooting and maintenance
5. Describe the Boiling heat transfer, mass transfer and Evaluate the heat exchanger and examine	5. Draw P-v diagram for single-stage reciprocating air compressor, with and without clearance volume	5. Design of component for finite life and infinite life when subjected to fluctuating load	5. Understand gyroscopic effects in ships, aeroplanes, and road vehicles.	5. Select quality control techniques and its applications		5. Analyze the environmental implications of automobile emissions. And suggest suitable
6. Explain the thermal radiation black body, emissivity and reflectivity		6. Design of components like shaft, key, coupling, screw and spring	6. Understand free and forced vibrations of single degree freedom	6. Plot quality control charts and suggest measures to improve the		6. Evaluate future developments in the automobile technology

1. Manufacturing Processes - II	2. Machine Design - II	3. Applied Thermodynamics - II	4. IC Engines	5. Mechanical Measurements	6. Mechanical Measurements
Students will be able to:	Students will be able to:	Students will be able to:	Students will be able to:	Students will be able to:	Students will be able to:
1. Understand the process of powder	1. Define function of bearing and classify bearings.	1. understand Fundamentals of IC Engines	1. Understand the geometry of single point	1. Define measurement parameters, and	1. To provide an overview of measurement

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**ELECTRONICS AND TELECOMMUNICATION ENGINEERING DEPARTMENT**  
**PROGRAMME SPECIFIC OUTCOMES (PSOs)**


Graduates will be:

PSO 1: Able to apply knowledge of mathematics, science and core engineering in the field of Electronics & Telecommunication Engineering.

PSO 2: Able to apply knowledge related to Electronic Devices & Circuits, Electromagnetic, Digital Signal Processing, Communication Engineering, control systems, VLSI design and Embedded Systems etc., in the design and implementation of applications in E&TC engineering.

PSO 3: Able to solve complex Electronics and Telecommunication Engineering problems, using latest technology along with analytical and managerial skills to arrive appropriate solutions, either independently or in team.

  
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**COMPUTER SCIENCE ENGINEERING DEPARTMENT**

**PROGRAMME SPECIFIC OUTCOMES (PSOs)**

- 1. Graduates will be able to apply the knowledge of computer systems, hardware and software
  
- 2. Graduates will be able to make use of modern tools for solving complex engineering problems in Java, dot net and networking



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